

LOCUS OF CONTROL ORIENTATION AND LEVEL
OF PAIN IN POSTSURGICAL PATIENTS

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Julianne M. Sarcone
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by
Julianne M. Sarcone

Approved by Committee:

Barbara Haag
Barbara Haag, R.N., Ph.D.

Phyllis J. Kingsbury
Phyllis J. Kingsbury, Ph.D.

Sandra L. Caligiuri
Sandra L. Caligiuri, M.S., R.N.

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ABSTRACT

The purpose of this study was to investigate whether health locus of control accounted for differences in perception of pain relief in persons who had abdominal surgery and received epidural analgesia as a method to control acute pain postoperatively. Forty subjects who met the study criteria responded to the Multidimensional Health Locus of Control questionnaire. Their level of perceived pain was determined by a review of medical records. Findings indicated no statistical significance in pain perception when subjects were categorized as having an internal, chance, or powerful others health locus of control. Recommendations for further research and implications for nursing practice are given.

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CHAPTER I

DIMENSIONS OF THE PROBLEM

Perceptions of pain relief in postoperative persons and health locus of control were investigated in this study. Persons who had abdominal surgery between May 1, 1991 and July 1, 1992 at a large Midwestern medical center and had epidural analgesia to control pain were invited to participate in this study. Those who agreed to participate were asked to complete the Multi-dimensional Health Locus of Control (MHLC) scales that are designed to categorize respondents into IHLC (internal health locus of control), PHLC (powerful others health locus of control) and CHLC (chance health locus of control). Subjects' hospital records were then reviewed to obtain data about their perception of pain relief with epidural analgesia while recovering from abdominal surgery. The nurses providing patient care followed a protocol that required them to ask and record the patient's perception of pain relief on a scale of 0 to 10 and "0" representing "no pain," "5" as "moderate pain" and "10," "extreme pain."

Pain is often a perplexing phenomenon that challenges nurses. Carr (1990) described postoperative wound pain as a "major under-recognized problem" (p. 89). Ketovuori (1987) documented that 80% of surgical patients suffer moderate to intense pain after surgery despite the use of analgesics. The need to gain insight into the pain experience of the postoperative patient goes beyond a subjective casual interest. Rather, it is an obligation of those involved in provision of health care to gain understanding of the pain experience. Carr (1990) stated that "Pain relief is desirable not only for humane and moral

reasons, but also because pain relief improves the patient's physiological and psychological variables" (p. 90). Explanations for the lack of adequate pain control included lack of understanding of the psychological aspects of pain perception (VanDalfsen and Syrjala, 1990) and the lack of adequate assessment of clients' pain by nurses (Carr, 1990; Ketovuori et al., 1987; and Leisifer, 1990).

It is evident to those in contact with persons experiencing pain that there is something beyond the physiological explanation that contributes to the pain experience. VanDalfsen and Syrjala (1990) suggested that:

Pain researchers and clinicians are increasingly aware of the role of psychological variables in moderating both acute and chronic pain. With the gate-control theory of pain, it has become widely accepted that a direct correlation does not necessarily exist between extent of the injury and pain expression (p. 421).

This broadened approach to thinking about pain has led to the delineation of psychological factors contributing to the human pain response. Peck (1985) developed a list of factors seen as connected to pain response and to the reporting of pain by an individual such as expectation; attention versus distraction; cognitive appraisal; observational learning; fear and anxiety; individual coping style, perceived control over pain. VanDalfsen (1990) reviewed and reported that studies have been done to validate the relationship between these factors and the pain experience.

One factor that is often referred to in the literature is a phenomenon that attempts to explain that a person's response to pain or style of coping with pain is contingent upon a perceived control over pain. This concept of perceived control is more formally known as a person's "locus of control" (Rotter, 1966, p. 1). Locus of control (LOC) is a popular way of classifying peoples' perceptions of events, and, in turn, serves as a predictor of a person's response to a particular phenomenon. LOC was developed for and utilized widely in psychology as a classifier and predictor of human behavior. The tool used in determining a person's LOC has since been adapted to predict a health-related control orientation (Winefield, 1982). Wallston et al. (1978) developed the MHLC scales "to tap believes that the source of reinforcement of health-related behaviors is primarily internal, a matter of chance, or under the control of powerful others" (p. 160).

While studies of LOC and health locus of control (HLC) with chronic pain have been done, Turk and Rudy (1988) contend that this important area of study has not been as rigorously pursued in the arena of acute pain. Therefore, perceptions of acute pain relief by persons who had abdominal surgery and their MHLC were investigated.

Purpose

The purpose of this study was to investigate whether health locus of control accounted for differences in perception of pain relief in persons who had abdominal surgery and received epidural analgesia as a method to control acute pain postoperatively.

Hypothesis

The following hypothesis was tested: Health locus of control will account for differences in perceived pain relief in persons who have had abdominal surgery and have received epidural analgesia for pain control.

Theoretical Basis

The theoretical basis of this study was derived from Orem's Self-Care Deficit Theory developed between 1956-1989. One concept central to this general nursing theory is that of self-care agency. Orem (1989) described the entity of self-care as "mature or maturing persons who are engaging in a self-regulatory form of action named self-care that they perform within the context of their day-to-day living" (p. 50). In this theory of self-care, persons are characterized as having the ability and responsibility to regulate and control their own functioning by maintaining health and preventative disease. Orem discussed factors of the internal and external environment that influence human functioning and assumed that persons have some control over these factors.

Orem (1989) described the concept of self-care deficit as a result of some limitation in a person's self-care agency. It is this self-care deficit that leads a person to need nursing service. This study investigated pain as a factor that affects human functioning. The person in pain may engage in self-care to deal with its threat to normal functioning. Pain may also be a factor that leads to self-care deficit.

According to Orem (1989), nursing's concern is "man's need for self-care action and the provision and management of it on a continuous basis in order to sustain life and health, recover from disease or injury, and cope with

their effects" (p. 52). Nursing's role, according to this theory, is to intervene to a degree necessary based on the person's own self-care potential. The goal of this intervention is to assist the person to regain independence in self-care agency. For nurses to intervene appropriately, they must be able to assess effectively the person's self-care abilities. Acquiring understanding about the diversity of ways or degree to which persons in pain attempt to cope will add dimension to the Self-Care Deficit Theory of Nursing.

Definition of Terms

Perceived pain relief was defined as the level of pain the person reported as remaining regardless of intervention. Perceived pain relief was operationally defined as a number between 0 and 10 selected by the person to describe a level of pain with 10 being extreme pain, 5 being moderate pain, and 0 being no pain at all. Persons who received epidural analgesia were asked their perception of pain every four hours by the nurses and responses were recorded on the epidural flow sheet (see Appendix A for epidural flow sheet and Appendix B for the epidural protocol).

A postoperative person was defined as one between the ages of 18 and 80 who had abdominal surgery with an abdominal incision between May 1, 1992 and July 1, 1992.

Epidural analgesia was defined as the administration of narcotics for the purpose of pain relief through the epidural route. Narcotics were delivered at a prescribed rate through a needle inserted into the interspace of L4 or L5 or at the level nearest the area requiring analgesia. The catheters were advanced over the needle approximately 4 cm into the epidural space (McNair, 1990).

Anesthesiologists were responsible for prescribing the narcotic and dosage to provide the most effective pain relief with the fewest side effects. Nurses were responsible for administering the analgesic according to the prescribed parameters and monitoring for side effects and the effectiveness of the pain relief strategy.

Health Locus of Control (HLC) was theoretically defined by Wallston et al. (1978) as a person's belief that "the source of reinforcements for health-related behaviors is primarily internal, a matter of chance, or under the control of powerful others" (p. 160). The person was placed in the category of Internal, Powerful Others, or Chance Health Locus of Control by a score on Multidimensional Health Locus of Control (MHLC) scales (Wallston et al., 1978) (see Appendix C).

Significance of the Study

Nurses have a moral and ethical responsibility to be aware of and to provide the most effective care modalities for persons for whom they care. Ketovuori (1987) and Cohen (1980) suggested that one area in which nurses are likely to provide less than effective care is in the treatment of acute pain. It is important that nurses begin to use and/or design tools that will improve their ability to assess and understand differences in persons. A clearer understanding of how HLC orientation influences perception of pain relief provides important information that may assist nursing assessment of postoperative persons in acute pain and provide predictors to the response of persons to a particular pain intervention. It is through discovery of ways to maximize assessment skills that

nurses meet the goal of providing the most effective patient care and ultimately enhance nursing's position as a major contributor to the health care team.

CHAPTER II

LITERATURE REVIEW

The purpose of this study was to determine if health locus of control (HLC) accounted for differences of perceived pain relief. To support the rationale for this study, literature was reviewed in the areas of the evolution of locus of control (LOC) theory, pain theory, epidural analgesia and LOC as it relates to pain. The literature review concludes with a summary.

The Evolution of Locus of Control Theory

Control and its effect on resultant outcomes has long been a topic of interest to psychologists (Mineka & Henderson, 1985). Theories have evolved to make predictions about these relationships. These theories can be divided into predictions related to exposure to uncontrollable events and predictions related to controllable events. "Learned helplessness" is a theory that describes and predicts the human response to exposure to uncontrollable events (Overmier & Seligman, 1967). This theory proposes that after exposure to a surprise event or an event that could not be modified by the participants' response, the person responds to future events with "a response-initiation deficit" due to the belief the response will have no effect (Mineka & Henderson). The theory that has explained an opposing prediction is known as "mastery effects." This theory hypothesizes that a response to a controllable event can be greatly enhanced by prior contingent stimulation (Mineka & Henderson). Research in these areas has further revealed that even if control over the event was simply a perception, the result was a decrease in the stress evoked by the event (Mineka & Henderson). Much of the research in this area has investigated methods that health care

personnel/nursing can use to increase this sense of control, and therefore decrease the stress related to hospitalization, illness, pain, etc. (Bandura, Cioffi, Taylor & Brouillard, 1988).

Discrepancies exist in reports found in the literature about whether a person's sense of control over an event or the predictability of an event had a positive effect on the patient's response to that event and lessen the related stress. Mineka and Henderson (1985) concluded that these discrepancies merit further research to gain a greater understanding of what motivates human response.

The term "locus of control" was developed from psychological theory in an attempt to explain the differences in human behavior. Rotter (1966) derived an explanation from social learning theory that contributed these differences to variations in perception. Rotter explained:

The role of reinforcement, reward, or gratification is universally recognized by students of human nature as a crucial one in the acquisition and performance skills and knowledge. However, an event regarded by some persons as a reward or reinforcement may be differently perceived and reacted to by others. One of the determinants of this reaction is the degree to which the individual perceives that the reward follows from, or is contingent upon, his own behavior or attributes versus the degree to which he feels the reward is

controlled by forces outside of himself and may occur independently of his own actions (p. 1).

Rotter (1966) further explained that what is important to note is that the effects of reinforcement are not a given for all individuals but are dependent upon how they perceive the reward as a result of the intended behavior. This perception was classified by Rotter as a generalized expectancy of either internal or external control. A generalized expectancy is an individual's "consistent beliefs which influence behavior in various situations" (Wallston, Maides & Wallston, 1976, p. 216). Rotter described the generalized expectancy of external control as:

When reinforcement is perceived by the subject as following some action of his own but not being entirely contingent upon his actions, then, in our culture, it is typically perceived as luck, chance, fate as under the control of power others, or as unpredictable because of the great complexity of the forces surrounding him (p. 1).

Rotter describes the generalized expectancy of internal control "...if the person perceives that the event is contingent upon his own behavior or his own relatively permanent characteristics" (p. 1). He stated: "A perception of causal relationship need not be all or none but can vary in degree" (Rotter, p. 1). Rotter developed the Rotter I-E (internal/external) LOC scale that measures a person's control orientation.

Since the advent of Rotter's I-E LOC scale, researchers have related this concept to a variety of populations and human behaviors. Along with this trend has been the development of more specialized tools to measure LOC in relation to specific human experience (Lefcourt, 1982). Lefcourt extensively summarized and evaluated the work that had been done regarding this concept of LOC since Rotter's (1966) abstract. Lefcourt concluded that despite the many criticisms of Rotter's I-E scale, the research using this tool and tools developed from it are adequate and have yielded important data documenting a unique understanding of the effects of control perception.

Lefcourt (1982) advocated continued discovery of the LOC concept using the current tools while encouraging an effort to develop tools that would measure the LOC concept in more specific domains of human behavior. One tool recommended by Lefcourt was the Health Locus of Control (HLC) scales (Wallston et al., 1976). Rock, Meyerowitz, Maisto and Wallston (1987) described this tool as "one of the more widely used and psychometrically sound examples of these scales" (p. 185). This 11-item Likert-type scale was designed to discover information about how the generalized expectancies of control affect a person's health-related beliefs (Wallston et al., 1978). The scales classify the individual into one of two categories. The first category is labeled "health-externals," those who believe that determinants of their health status are such things as luck, fate, chance or powerful others. The other classification is "health-internals," those who believe that health is determined by personal behavior (Wallston et al., 1976).

Wallston et al. (1978) responded to a criticism of the HLC scale made by Levenson. Levenson (1973) believed that the LOC scales did not discover the multidimensionality of the LOC issue. He believed that the external classification should be divided into more specific dimensions. The result was the Multidimensional Health Locus of Control (MHLC) scales (see Appendix C). These scales were developed "to tap beliefs that the source of reinforcements for health-related behaviors was primarily internal, or under the control of power others" (Wallston et al., 1978, p. 160). The scales categorized the results of the responses into eight different classifications of control and, in turn, added multidimensionality to the understanding of LOC.

Pain Theory

A review of current pain theory is essential to the understanding of the relationships proposed by this study. Pain itself is caused by threatened or actual tissue damage that stimulates nociceptive (pain sensitive) neural receptors or actual damage to the transmission system itself (Melzack & Wall, 1987). "Once nociceptors are stimulated, the nerve impulse they discharge travels as electrical current to the spinal cord and then to the brain" (Melzack & Wall, p. 176). There are two types of peripheral nerves that carry the message from the receptors to the spinal cord and begin the sorting of information. Pricking/sharp pain is carried by A-delta fibers; Type C fibers carry burning/aching sensations. These fibers enter the spinal cord via the dorsal roots to terminate in the dorsal or sensory horns of gray matter. The nerve impulses (electrical current) carried by these fibers "becomes the experience of

pain as it reaches the brain. This pain experience can be altered by a number of factors" (Melzack & Wall, p. 176).

The most recent gate-control theory of pain called the Mark II and developed by Melzack and Wall (1987) explains how the pain experience can be altered. It presented the probability that there is an inhibitory "gate" in the brain stem which inhibits pain. This brain-stem inhibitory circuit was said to be a system including the midbrain, medulla, and spinal cord. This gate-control theory explained that:

Activation of cells in the midbrain's periaqueductal gray matter by electrical stimulation, opiate analgesic drugs, or possibly psychologic factors in turn stimulates structures in the medulla. These medullary structures then project to the inhibitory spinal pain transmission fibers. Pain itself may activate this system, so there is a natural control mechanism limiting the severity of the pain experiences (Melzack & Wall, 1987, p. 176).

Beyond the periaqueductal gray matter, there are several other levels at which the pain message can be altered, including the substantia gelatinosa, the pretricular gray matter and the intralaminar nuclei of the thalamus. Each of these areas contain a neurotransmitter called enkephalin which can modify the perception of pain by intercepting the message before it reached the cortex (Guyton, 1991).

Peck (1985) reviewed literature on pain and uncovered the following psychological factors that may alter the pain experience: expectation; attention versus distraction; cognitive appraisal; observational learning; fear and anxiety; individual coping style; and perceived control over pain.

Epidural Analgesia

The use of the epidural route for administration of narcotic analgesia in the treatment of postoperative pain has become a widely accepted practice (McNair, 1990). Its effectiveness as a treatment of the acute pain of the postoperative period has been demonstrated with patients having undergone lumbar laminectomy, intrathoracic surgery, abdominal surgery and orthopedic procedures (McNair, 1990).

This epidural route has had advantages that have been demonstrated to assist in the recovery of surgical patients. These advantages include: production of excellent analgesia; occurrence of minimal sedation; action of long duration' facilitation of early ambulation; rare need for repeated injections; presence of no significant effect on sensation; and production of no sympathetic blockade (little effect on blood pressure or heart rate) (McNair, 1990). McNair reviewed the nursing responsibilities to avoid or minimize the potential adverse effects of this route of analgesia. The adverse effects were respiratory depression, nausea and vomiting, urinary retention, pruritus, injury, inadequate analgesia, dural puncture, intravascular catheter placement, paresthesias, catheter shearing, and infection. McNair believed that through effective nursing management of the recovery of the person receiving epidural analgesia, the postoperative period will be greatly enhanced and the complications avoided.

Epidural analgesia involves placement of a small catheter into the interspace at the level of intended analgesia or according to physician preference. This procedure is performed under asepsis by the anesthesiologist. The catheter is then either connected to a continuous infusion or capped off for access for bolus administration of narcotic analgesia. The most commonly used narcotics include morphine, fentanyl, and meperidine (McNair, 1990). The epidural analgesia is said to interact with receptors at each of the levels of the nervous system to interfere with pain perception.

Locus of Control as it Relates to Pain Perception

The relationship between LOC and pain perception has been investigated. The focus of a majority of these studies has been the chronic pain experience. A study of control as a variable to predict a response to chronic pain has been a popular topic for scientific inquiry. A common observation of sufferers of chronic pain is that these individuals are prone to depression. Some researchers have tried to associate attributional style with this predisposition to depression. One popular hypothesis used to characterize or classify the person with chronic pain was the "revised learned helplessness theory." This theory predicted that persons who perceive events to be beyond their control and traditionally explain negative events as internal, stable and global and positive events as external, unstable and specific are prone to depression (Abramson, Seligman & Teasdale, 1978). Although studies have supported some merit for this explanation, others find the connection too weak to draw predictive conclusions using this theory (Love, 1988).

One such explanation that may add dimension to the understanding of chronic pain is predictions that are based on LOC. An external orientation can offer considerable meaning to the behavioral patterns of chronic pain patients. When a person is externally oriented, emotions and reactions are associated to stimuli of an external, uncontrollable force. An example is the person who may see pain as an uncontrollable phenomenon. The person in turn sees the response (depression) to this external, uncontrollable stressor as being caused by this external force. This association of pain causing depression predisposes this individual to be depressed until the pain is gone. This orientation continues its destruction as it discourages the seeking of treatment because the event is presumed uncontrollable. thus, the syndrome of the sufferers of chronic pain is described (Ciccone & Grzesiak, 1984).

Another association of LOC to chronic pain is that the treatment regimens that are offered to persons with chronic pain require an internal orientation (Ciccone & Grzesiak, 1984). Traditional treatment of acute pain, however, is more conducive to those with an external orientation. This same approach causes more discomfort to a person with an internal orientation as the participant is asked to react with passivity. This approach to pain management proposed by Ciccone and Grzesiak pointed out the significant need to understand a person's LOC orientation and attempt to meet his/her needs by tailoring interventions appropriately.

The study of headaches offered another popular arena for the study of chronicity, pain and control. One such study by Penzien, Holroyd, Holms & Hursey (1985) had as a sample 116 college students diagnosed having frequent

and severe tension headaches and 147 students determined to have moderate frequency headaches. The study examined a variety of psychological factors determined to be related to the pain experience. One such factor tested was the students' LOC using the MHLC scale. The findings could not demonstrate a definitive relationship between LOC and those most likely to suffer headaches. It did, however, indicate that those subjects with an external orientation were more likely to engage in nonproductive distressing thoughts which have been associated with increasing headache severity.

There has been a void in the literature concerning the relationship between LOC and the acute pain experience. Three studies pertaining to this relationship were found. Only one of the three studies addressed the topic of the acute pain experience in the surgical patient.

Professionals dealing with patients during the intrapartum experience have begun to investigate possible relationships of that experience and LOC. Hodnett and Osborn (1989) researched the effects of continuous intrapartum professional support on the childbirth experience. The researchers used a stratified randomized trial with 145 women with low risk pregnancies. The sample was stratified so that the population was representative of two types of prenatal courses; "General" and Lamaze. Three psychological variables were measured, including anxiety measured by the State-Trait Anxiety Inventory, (Spielberger, 1970); control measured by the Labour Agency Scale, (Hodnett & Simmons-Tropea, 1987); and commitment to unmedicated birth (measured with the CUB instrument) (Christensen-Szalanski, 1984). The study used Pearson correlations to determine that there were three factors that contributed to a

positive intrapartum experience by enhancing perceived control: expectations of control, the presence of a continuous professional care giver, and pain medication usage.

Scott-Palmer and Skevington (1981) studied the reports of pain by 34 women in labor and 30 women who were menstruating. LOC was measured by Rotter's I-E scale (1986) and pain measured using a ten point analogue scale and a pain adjective scale developed for the study. T-tests were performed on the pain scores of the two groups and a Pearson correlation investigated relationships between mean analogue pain scores, LOC, and other dimensions. "The results suggest that the duration of acutely painful body experience may well be cognitively mediated by beliefs about controllability" (Scott-Palmer & Skevington, p. 154).

The relationship between LOC and childbirth experience was again examined in a study by Crowe and von Baeyer (1989). This study examined variables such as the knowledge of childbirth, fears regarding pregnancy, LOC, state anxiety, expectation of pain, and confidence in ability to control pain as predictors of a positive childbirth experience. The study used the self-reports of pregnant women enrolled in prenatal classes to measure these variables. Twenty-one women completed both pre-and postpartum interviews. The pregnancy attitude index (PAI) (O'Connell, 1983) is a tool developed to measure LOC specific to pregnancy and was the tool adopted for this research. An unexpected predictor of pain was chance LOC. Women who believed that labor and delivery were a product of chance reported less pain.

Pickett and Clum (1982) conducted a study to investigate the effectiveness of using psychological interventions in the treatment of postsurgical pain and the anxiety of the patient undergoing a cholecystectomy. They investigated and classified the orientations of these individuals using the Rotter's LOC measure and searched for data that would support the selection of one technique over another depending on the patients' LOC. The patients were exposed to one of four interventions prior to surgery: relaxation training, relaxation information, cognitive distraction, and no treatment control. It was hypothesized that relaxation information as a cognitive distraction would be more effective with internally controlled individuals than with externally controlled individuals. Relaxation training was hypothesized to be more effective with externals. Pain was measured using the McGill Pain Questionnaire (source not given), an estimate of pain at its worse. State anxiety was measured by the Affective Reactions Questionnaire (Pickett & Clum, 1982). Data were also collected concerning the total number of analgesic medications used. The study did not demonstrate that these psychologic interventions were effective in reduction of postoperative pain. The study did support the use of cognitive approaches for patients with an internal LOC.

Summary of Literature Review

The review of literature revealed information that demonstrated statistically significant differences in pain experiences depending on a person's LOC. Researchers who have studied chronic pain have built a data base that enables them to predict and support these differences and put them to use in the treatment of chronic pain. Chronic pain treatment has actually moved away

from traditional interventions to tailor-made psychologically based treatment strategies that consider the person's control orientation. Researchers propose that this type of patient assessment and classification may also be useful in the arena of acute pain, but further research is required to identify whether differences between persons' perceptions of pain exist and to offer alternative treatment ideas (VanDalfsen & Syrjala, 1990). This study investigated whether HLC accounted for differences in the acute pain experience.

CHAPTER III

METHODOLOGY

The purpose of this study was to investigate whether health locus of control (HLC) accounted for differences in perception of pain relief in persons who had abdominal surgery and received epidural analgesia as a method of pain control. The research approach, sample, data collection tools, protection of subject's rights, procedure, and methods of data analysis are described in this chapter.

Research Approach

A retrospective design was used. According to Polit and Hungler (1987), in retrospective research "the investigator is interested in some 'effect' and attempts to shed light upon the factors that have caused it (p. 145)." In this study, the "effect" was perception of pain relief of persons who had undergone abdominal surgery and received epidural analgesia. This researcher investigated whether HLC orientation accounted for this effect.

Sample

The sample consisted of 40 persons who had abdominal surgery and received postoperative epidural analgesia between May 1, 1991 and July 1, 1992 at a Midwestern hospital. Purposive sampling was used. The following criteria were established for inclusion of persons in the sample. The subjects:

1. had postoperative analgesia through an epidural catheter of either duramorph, fentanyl or demerol.
2. did not receive an anesthetic bolus during the period being studied.

3. experienced a recovery period without postoperative complications which would prolong the recovery period such as wound infection, dehiscence, abscess, or need for further surgery.
4. were between the ages of 18 and 80.
5. were mentally competent to complete the health locus of control questionnaire.

Characteristics of the sample are presented in Table 1.

Table 1.
Demographic Characteristics of the Sample

<u>Demographic characteristic</u>	<u>Number of subjects</u>
Age	
21-30	3
31-40	2
41-50	9
51-60	8
61-70	9
71-80	9
Gender	
Male	24
Female	16
Type of analgesia	
Duramorph	36
Other	4

Data Collecting Tools

Data were collected from patient records and from the Multidimensional Health Locus of Control (MHLC) scales. Scores on the pain assessment tool and pertinent demographic data were elicited from the subjects' records. The MHLC scales were used to determine into which category of LOC the subjects were placed.

The Patient Record

The patient record was utilized to collect both demographic data and the pain measurement scores. The demographic data collected included gender, age, medical diagnosis, surgical procedure and date, and type of analgesia (see Appendix D for demographic data collection tool). Polit and Hungler (1987) described patient records as an economical source for a wealth of information and a less time-consuming method of data collection. The use of records assures that reactivity and response biases are eliminated. The researcher may also more easily study trends over time. Polit and Hungler identified the major disadvantage of collecting data from records as being that the researcher has not collected the information and may not be aware of or able to control for biases and limitations.

The Pain Scale

The pain scale used by the nurses who had cared for the subjects was adapted from the principles of a visual analogue scale (VAS). A VAS is a type of magnitude scaling. Magnitude scaling is a data collection technique developed to enable a researcher to obtain values which are more discriminative

than previous scaling techniques. Magnitude scaling provides interval-level data (Burns & Grove, 1987).

McGuire (1984) proposed that VAS was best suited for measurement of clinical pain (acute/chronic or progressive). She documented an advantage of the VAS over a visual descriptor scale (VDS) as the avoidance of forced word choice and artificial categorization that in turn may be a more sensitive measure. McGuire (1984) summarized the reliability of the VAS instrument as "good" and the validity as "probable" (p. 155). This review also cited the VAS as one of the easiest tools to understand and quickest to score. Banos, Bosch, Canellas, Bossols, Ortega, and Bigorra (1989) studied the acceptability of the VAS for pain measurement in the clinical setting and stated that among the potential methods useful in pain assessment, the visual analogue scales were commonly considered more sensitive and accurate than other rating scales.

The reliability of the VAS was investigated by Revill, Robinson, Rosen and Hogg (1976) utilizing the test-retest method. Revill et al. asked subjects to rate a distant pain event in 5 minutes and then in 24 hours. The researchers reported correlations of those repeated measures of .95 to .99. Wewers and Lowe (1990) found the interrater reliability of the VAS to be .99. This coefficient represents the reliability of the investigator's ability to score the VAS and not the ability of the subject to utilize the tool.

The construct validity of the VAS was determined by Seymour (1982) utilizing an experimental manipulations approach. Seymour determined the tool to be sensitive in discerning the decrease in dental pain after the administration of analgesia.

The disadvantage of the VAS scale for use with surgical patients is that vision and ability to concentrate on the printed scale may be altered by the surgical experience. Understanding these factors, the nurses adapted the VAS. The nurse described the tool to the person as a scale number 0 to 10 with the 0 end representing no pain, a 5, or the middle of the scale, being moderate pain, and the 10 end as severe pain. The person was asked to choose a number that best described his or her present level of pain. The number chosen was then documented in the patient record.

The Multidimensional Health Locus of Control Scales

(MHLC scales)

The MHLC scales are widely accepted as the most reliable and valid measure of a person's LOC (locus of control) specific to health issues (Rock et al., 1987). The MHLC is an 18-item Likert-type questionnaire measuring three dimensions of LOC. Based on responses on the MHLC scales, persons are placed in one of three categories: Internal Health Locus of Control (IHLC), Chance Health Locus of Control (CHLC), or Powerful Others Health Locus of Control (PHLC). Six questions represent each of the three scales.

The MHLC scales forms A & B were tested by creating a questionnaire that combines the MHLC scales with Levenson's Internal, Powerful Others, and Chance (I, P & C) scale items, the Marlowe-Crowne Social Desirability Scale (shortened to 10 items), two questions regarding health status and questions regarding demographic data. The questionnaire was distributed to adults (16 and older) at an airport to get a divergent sample. 44 percent of the sample responded and, of these, 49 percent were male and 74 percent college educated.

Low positive correlations with appropriate internal, powerful others, and chance (I, P & C) scale items indicated construct validity. Predictive validity was established with correlations in the predicted direction of the MHLC scales with the health status (Wallston et al., 1978).

Protection of Human Rights

Permission to conduct the study was obtained from the Drake University Human Subjects Research Review Committee (HSRRC) and the hospital's Institutional Review Committee (IRC) (see Appendix E for letter of permission from IRC). Permission was received from Wallston to use the MHLC scales (see Appendix F for permission to use MHLC scales). The subjects' rights to freedom from harm, informed consent, and privacy were protected. Potential subjects were sent a consent letter, the MHLC scales, and a self-addressed stamped envelope. The consent letter informed the potential subjects of the purpose of the study, the person's role in the study, potential benefits, and directions as to how to complete the materials (see Appendix G for consent letter). The letter included a statement that completion and return of the materials indicated consent to participate and allowed the researcher permission to review the patient record for pain scores and demographic data. This study required no intervention or manipulation of the normal course of therapy and therefore no threat of harm for the participants. The only possible threat to participants was an invasion of privacy. Participants were assured that confidentiality was to be maintained by identifying persons only by their hospital I.D. number throughout the study. The subjects were informed that any data published as a result of this study would be reported as aggregate data.

Names or other identifying information about the participants would not be utilized. All data have been secured in a locked cabinet.

Procedure

The name and I.D. number of 132 persons who had abdominal surgery and received epidural analgesia between May 1, 1991 and July 1, 1992 were obtained from the surgical unit on which they had been cared for postoperatively. The addresses and phone numbers of these persons were obtained from the Medical Records Department. The hospital's Institutional Review Committee required the researcher to contact the surgeons who cared for these persons. Three doctors denied access to the persons for whom they had cared. This decreased the potential sample to 88.

The letter explaining the study, the MHLC scales, and a self-addressed stamped envelope were mailed July 2, 1992 to the remaining 88 potential subjects. The MHLC scales were marked with the patient's I.D. number so that it could be matched with the data to be collected from the patient record. On July 17th, persons who had not responded were called by the researcher to verify that they had received the mailing. The researcher offered to answer any questions they had regarding the study. By July 24, 1992, 51 persons had responded by returning the MHLC scales. The researcher then examined the records of the 51 respondents to determine if they met the criteria and to collect the demographic data and data regarding pain. Forty persons met the criteria for inclusion in the sample. The pain scale scores which had been recorded every four hours for the first 48 hours after the patient was received on the surgical unit were obtained. These data were further broken down into the pain

scores for postoperative day one and two. Postoperative day one was considered the first 24 hours after the patient was received on the unit from the recovery room. Postoperative day two was the second 24 hours after the patient was received on the unit from the recovery room. Only data from the records of those in the sample who had met the criteria of the study and who had agreed to participate were included.

CHAPTER IV

ANALYSIS AND FINDINGS

The purpose of this study was to investigate whether health locus of control (HLC) accounted for differences in perception of pain relief in persons receiving epidural analgesia postoperatively. A description of findings determined by statistical analysis is presented in this chapter.

Locus of Control Categories

The subjects were assigned to one of three HLC categories by converting their raw scores on the MHLC into z scores, selecting the highest of the three standardized scores. Results of this categorization process are presented in Table 2.

Table 2.
Multidimensional Health Locus of Control (MHLC) Categories

<u>MHLC category</u>	<u>Number of subjects</u>
Internal	13
Chance	15
Powerful Others	12

Pain Perception Scores

The perception of pain relief was measured utilizing self-report on the 10 point pain scale. The mean of pain scores was calculated for the first two postoperative days. The pain perception data are presented in Table 3.

Table 3.
Mean Pain Scores for Day 1, Day 2, and First 48 Hours

<u>Period studied</u>	<u>Mean pain score</u>	<u>Range</u>
Day one		
Internal	2.04	0.00-5.00
Chance	1.70	0.17-5.58
Powerful others	1.90	0.00-4.75
Total Group	1.87	0.00-5.58
Day two		
Internal	1.57	0.00-3.50
Chance	1.68	0.17-6.30
Powerful Others	1.52	0.00-3.90
Total Group	1.59	0.00-6.30
First 48 hours		
Internal	1.79	0.00-4.30
Chance	1.70	0.00-5.96
Powerful Others	1.70	0.00-3.33
Total Group	1.73	0.00-5.96

Testing the Hypothesis

The hypothesis that was tested was: Health Locus of Control will account for differences in perceived pain relief in persons who have had abdominal surgery and received epidural analgesia for pain control.

Table 4 depicts the comparison of mean pain scores on day one when the sample was categorized by health locus of control (HLC); i.e., internal health locus of control (IHLC), chance health locus of control (CHLC), or powerful others locus of control (PHLC).

Table 4. ANOVA: DAY 1
Comparison of Mean Pain Score When Categorized by
Health Locus of Control

DF	SS	MS	F
2	0.835	0.418	0.167
37	92.753	2.507	
39	93.753		

As table 4 indicates, there was no significant difference in pain perception when the sample was categorized by HLC $F(2,37) = 0.167, p < .05$.

Table 5 depicts the comparison of mean pain scores on day two when the sample was categorized by HLC.

Table 5. ANOVA: DAY 2
Comparison of Mean Pain Score When Categorized by
Health Locus of Control

DF	SS	MS	F
2	0.216	0.108	0.059
35	63.476	1.814	
37	63.692		

As table 5 indicates, there was no significant difference in pain perception when the sample was categorized by HLC $F(2,35) = 0.059, p < .05$.

Table 6 depicts the comparison of mean pain scores for the first 48 hours when the sample is categorized by HLC.

Table 6. ANOVA: FIRST 48 HOURS
Comparison of Mean Pain Score When Categorized by
Health Locus of Control

DF	SS	MS	F
2	0.074	0.037	0.021
37	64.218	1.736	
39	64.292		

As table 6 indicates, there was no significant difference in pain perception when the sample was categorized by HLC $F(2,37) = 0.021$, $p > .05$.

Additional analyses were done to determine if the level of reported pain differed when subjects were categorized by age, gender, and type of analgesia. No significant differences were revealed with t-tests in pain scores on day one, day two, and the first 48 hours when the sample was categorized by gender. Pearson's correlations were done to determine the relationship between age and level of pain. There was not a significant relationship between age and pain on day one, $r(38) = -0.125$. However, there was a significant relationship between age and pain on day two, $r(36) = -0.34$, significant at the 0.05 level. As age increased, pain decreased. There was not a significant relationship between age and level of pain for the first 48 hours, $r(38) = -0.221$. The amount of pain on day one, day two, and the first 48 hours was analyzed when the sample was categorized by analgesia, and there were no significant differences between those who received duramorph and those who received other analgesia through their epidural catheters.

CHAPTER V

DISCUSSION AND CONCLUSIONS

The purpose of this study was to determine if health locus of control (HLC) accounted for differences in perceived pain relief with epidural analgesia during the postoperative period. One hypothesis was tested. In this chapter the findings of the study are discussed, the limitations are identified, implications for nursing are presented, and recommendations for further investigation are suggested.

Discussion of Findings

The hypothesis that HLC will account for differences in perceived pain relief in persons who had abdominal surgery and received epidural analgesia for pain control was not supported.

Numerous reports have indicated success in the treatment of chronic pain in patients by utilizing an understanding of the person's locus of control (LOC) to guide intervention. Studies have shown that there were differences in perception of chronic pain when categorized by LOC (Abramson et al., 1978, Ciccone and Grzesiak, 1984, & Penzien et al., 1985). This investigator then asks the question: Why were these same differences not noted in this study of acute surgical pain?

One explanation may be that the acute pain of surgery, unlike chronic pain, is a novel stimuli. It is theorized by Donovan (1990) that acute pain, such as the pain experienced in surgery, involves the activation of the autonomic nervous system. This is evidenced by such symptoms as tachycardia, tachypnea, hypertension, sweating, and pallor. Such an autonomic response to

the pain stimuli would be less susceptible to psychological influences and therefore may explain why significant differences in pain perception were not found in this study.

Another explanation for the lack of significance between the classification of HLC and pain perception may be related to the fundamental concept of control. Perhaps the acute pain experience after surgery may be a situation over which no one, regardless of LOC, has a sense of control. Factors such as the paternalistic relationship that continues to exist among patients and their doctors, the novelty of the surgery experienced by most patients and the nature weakening of defenses by illness may all contribute to a sense of helplessness for surgical patients.

Finally, depression associated with chronic pain is another factor that differentiates it from the acute pain experience. It seems that the externally oriented person is more susceptible to depression as a result of chronic pain (Ciccone & Grzesiak, 1984). This depression further debilitates the person's sense of control and therefore would further differentiate the strategies utilized to treat the person with an external LOC and a person with an internal orientation. The element of depression likely does not apply to acute, short-term pain.

Why then are the findings of differences in pain perception in the acute pain experience of labor not seen in this study population? An understanding of this phenomenon may be found by investigating some of the other factors determined to effect pain perception addressed in the review of literature. Other variables known to influence the pain experience include a variety of

psychological factors. These factors "may change the pain threshold to such an extent that it influences an analgesic's ability to reduce pain" (DuRant, R. Jay, S., Jerath, R. and Fink, S., 1988, p. 428). Anxiety is one such factor that has been determined to impact the pain experience. For example, in a study investigating factors influencing the childbirth experience, anxiety emerged as the strongest predictor of labor pain (Crowe & von Baeyer, 1989). In addition, patients' trust in their physicians (DuRant et al., 1988) and preoperative education (Crowe & von Baeyer) were indicated as important determinants of the pain experience. It is well known among health care workers that although preoperative education has a significant impact on persons' decreasing anxiety and enhances their abilities to cope during the postoperative period, it is difficult to implement preoperative education on a consistent basis. This is due to current health care trends which have made it unusual for a person to be hospitalized for a period prior to surgery, and, therefore, comprehensive preoperative education is not the norm. The trend in health care of the expectant mother, however, has moved toward comprehensive prelabor education as the norm. It has been determined that seeking information is a technique that is effective for the internally oriented individual and less effective for the person with an external orientation (Crowe & von Baeyer). Perhaps then the more positive labor experiences reported by internally oriented persons are due to their tendency to better utilize the prelabor education. This difference is less likely to be seen in the acute pain experience of surgery when comprehensive education is not as prevalent and the time for implementing the education plan not as extensive.

Another explanation for why the hypothesis was not supported is that perhaps the epidural method of pain control is so effective that individual coping mechanisms are not taxed. As stated in the review of literature, Ketovuori (1987) found that 80 percent of the patients studied suffered moderate to severe postsurgical pain. Table 3, p. 30, indicates that the average level of pain reported in this study sample was < 2 on a scale of 0 to 10 with 0 being no pain at all.

A final explanation for the lack of support of the hypothesis is that there are generalized expectancy variables or personality variables other than those tapped by the MHLC scales, and, thus, other approaches may deserve further examination. Lefcourt (1982) recommended that locus of control tools be developed to measure expectancies of specific phenomenon. Specialized scales have emerged, including the MHLC scales (Wallston et al., 1978) and the *Drinking-Related Locus of Control* (Oziel, Obitz & Keyson, 1972). The MHLC scales were developed to investigate health beliefs. Perhaps acute pain is a phenomenon that cannot be generalized to health beliefs. The development of a scale specifically to measure expectancies related to pain and the pain experience may be beneficial to future studies.

Additional analyses indicated that no statistically significant differences were found in pain perception when the sample was categorized by gender or type of anesthesia. Perhaps differences may have been noted when categorized by type of analgesia if there were more subjects that received analgesics other than duramorph. Table 1, p. 22, indicates that only 5 of the 40 subjects received something other than duramorph. Analysis did reveal that on day two,

the older the patient, the less pain reported. This trend was not found in analysis of pain on day one or the first 48 hours. One possible explanation for this finding is that, for the older client, activity is increased more conservatively on day two.

Summary

The following statements summarize the findings of this study:

1. HLC orientation accounted for no statistically significant difference in perceived pain relief in persons who have had abdominal surgery and received epidural analgesia for pain control.
2. There was no statistically significant difference in pain perception when the sample was categorized by gender.
3. There was no statistically significant difference in pain perception when the sample was categorized by type of analgesia.
4. A statistically significant difference in pain perception was noted on day two when the sample was categorized by age. The older the patient, the less pain reported. This trend was not found to be significant on day one or during the first 48 hours.

Although this study did not support HLC as a predictor of pain relief perception, it would appear that a variance of pain perception does exist. The range of reported pain scores was 0 to 9, and the range of individual means of pain scores for the first 48 hours was 0 to 5.96. Findings in the literature also support the assumption that there is a psychological dimension to the pain experience. It does seem important that research continue to investigate this

domain of the acute pain experience. The following section makes recommendations for further research.

Limitations

One limitation of the study may have been the use of a pain scale administered by a large number of nurses. Although the administration of the pain scale was guided according to an established protocol, it is possible that the nurses did not consistently follow the protocol. Ketovuori (1987) studies nurses' and patients' conceptions of postoperative wound pain and determined that a bias did exist among nurses based on factors such as whether the nurse had undergone surgery and the years of nursing experience. Ketovuori found differences in the nurses' interpretation of patients' reports of pain evidenced by the amount and frequency of analgesic delivered. The present study did not control for this type of a bias.

This study may also be limited by its use of self-report measures that are susceptible to numerous possible distortions. The Multidimensional Health Locus of Control (MHLC) scales are self-report scales. Several phone calls and lettered were received by the investigator from subjects indicating a need to explain their answers. Perhaps the questions were not clear for all subjects. It may be advisable that future investigators administer the MHLC scales in person.

The use of the MHLC scales may also be a limitation to the study due to its general nature. It is possible that this scale designed to measure control and health beliefs may not be specific enough to predict pain-related control issues.

Another limitation of the study might be the number of anesthesiologists responsible for the epidural analgesic. The anesthesiologists may differ in their expertise in prescribing the epidural analgesic. They may also differ in their expertise in epidural catheter placement.

Implications for Nursing Practice

The findings of this study contribute to the body of knowledge pertaining to the understanding of the acute pain experience. This study concluded that no statistically significant differences in pain perception for a group of patients who had abdominal surgery at a Midwest hospital and received epidural analgesia could be accounted for by HLC. This finding is important to nursing because it begins to narrow the field of explanations for the great variety of pain experiences reported by the postoperative patient. A common tendency observed by this investigator is that nurses associate these varied reports of perceived pain to personality variables and subsequently do nothing to adjust the pain intervention. The findings of this study did not support such conclusions when the personality variable was HLC. Such a finding should caution nurses about drawing conclusions regarding their patient's reports of pain, encourage nurses to investigate other factors that may be contributing to pain perception, and document findings so that nursing, as a profession, has a solid knowledge base to use in the assessment and treatment of pain.

As Orem's (1989) theory suggested, the goal of nursing is to assist the patient to regain independence in self-care agency. It is certainly recognizable that the acute pain experience after surgery is a time when the self-care agency of persons is compromised and therefore requires the intervention of a nurse.

Orem cautioned nurses that this intervention must be patient specific because self-care abilities vary among persons. It then becomes key to the role of the nurse to be able to assess the person accurately. When it is pain that is impeding the person's self-care capabilities, it is the nurse's moral, ethical and professional obligation to recognize and understand the factors contributing to the pain experience. This researcher suggests that, as indicated by Orem's depiction, the nurse's reliance on assumptions to guide interventions is insufficient. Rather, nurses must engage in research to validate ideas that will guide practice. As the review of literature indicated, acute pain continues to be an under-recognized factor which significantly affects patient outcomes. Nurses are obligated to respond to this deficiency.

Recommendations for Further Research

Recommendations for further research include studies to answer the following questions:

1. Does LOC account for differences in perception of acute pain when level of anxiety is controlled?
2. Does LOC account for differences in perception of acute pain when the person has undergone:
 - a. Thoracic surgery?
 - b. Upper abdominal surgery?
 - c. Lower abdominal surgery?
 - d. A Cesarean section?
 - e. Burn treatment?
 - f. A limb amputation?

3. Would LOC account for differences in perceived pain relief in patients who have an abdominal surgery and received the following interventions of pain relief strategies:
 - a. Preoperative education?
 - b. Patient-controlled analgesics (P.C.A.)?
 - c. Progressive relaxation?
 - d. Tradition analgesic injections?
 - e. Guided imagery?
 - f. Patient-controlled epidural analgesic?
4. Would LOC account for differences in perceived pain relief in patients who have had abdominal surgery and received epidural analgesia for pain relief when LOC is measured by a tool developed to specifically address the pain experience?

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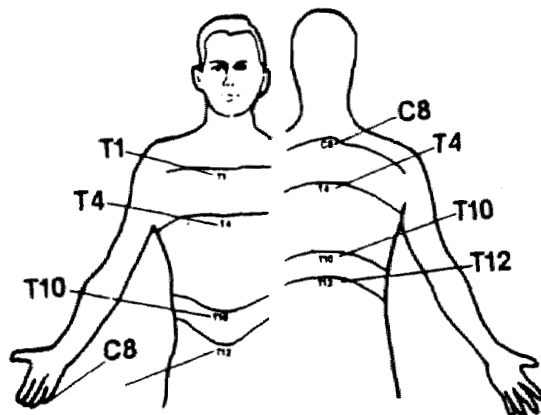
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Appendix A: Epidural Flow Sheet



Nursing Epidural Flow Sheet

Start Date/Time	Solution/Bolus	Initials	D/C Date/Time	Waste	Initials
Date/Time					
Date/Time					
DATE/TIME					
RATE OF INFUSION					
RESPIRATION RATE					
BP-P					
MENTATION (S-4)					
PAIN (0-10)					
SIDE EFFECTS					
SITE CHECK					
SENSORY DERMATONE/ MOTOR BLOCKADE					
CREDITS: VOLUME LIMIT/VOLUME GIVEN					
OTHER					
INITIALS					



CODES FOR ASSESSMENT

SENSORY DERMATONE LEVEL:

Cutaneous Landmark	Segments Level
Little finger	C8
Inner aspect of arm and forearm	T1
Nipple line	T4
Tip of xiphoid	T7
Umbilicus	T10
Inguinal ligament	T12

MOTOR BLOCKADE (BROMAGE SCALE)

DESCRIPTION OF BLOCK:

- 0 Full flexion of knees and feet possible. (0% block)
- 1 Just able to flex knees. Still full flexion of feet possible. (33% block)
- 2 Unable to flex knees. Still flexion of feet. (66% block)
- 3 Unable to move legs or feet. (complete block)

MENTATION SCALE:

- S = Sleeping
 1 = Alert, awake
 2 = Occasionally drowsy, easy to arouse
 3 = Lethargic
 4 = Somnolent, difficult to arouse

S/E - SIDE EFFECTS:

- N - Nausea I - Itching
 V - Vomiting R - Urinary Retention

SITE CHECK:

- + = Catheter intact, dressing dry
 - = Dressing wet, drainage noted (comment required)

PAIN: Ask patient to rate pain on a scale of 0 to 10 (see MAR)

TIME: _____	COMMENTS: _____
EPIDURAL CATHETER REMOVAL TIME: _____	INITIALS: _____
DESCRIPTION OF TIP: _____	
DESCRIPTION OF SITE: _____	



MEDICATION ADMINISTRATION RECORD

ALLERGIES:

START	STOP	MED/DOSE/FREQ/ROUTE	SCHEDULED MEDICATION		
			1st SHIFT	2nd SHIFT	3rd SHIFT

Appendix B: Epidural Protocol



South & University - Des Moines, Iowa 50314
NURSING

EPIDURAL CATHETER PROTOCOL

INITIATED	DISCONTINUED	INITIATED	DISCONTINUED
DATE _____	DATE _____	DATE _____	DATE _____
TIME _____	TIME _____	TIME _____	TIME _____
R.N. _____	R.N. _____	R.N. _____	R.N. _____

PURPOSE: To specify the nursing responsibilities in the management of a patient with an epidural catheter.

LEVEL: Interdependent (requires physician orders for dependent functions*)

SUPPORTIVE DATA: A registered nurse may administer an anesthetic or analgesic agent via continuous epidural infusion upon order of the anesthesiologist. The anesthesiologist will be responsible for the dressing change, tubing change, and catheter removal. A registered nurse in critical care may administer a bolus of an opioid (~~NOT anesthetic or any combination of anesthetic and analgesic agents~~) with an anesthesiologist's order. A patient must be in a critical care unit or in the Birthing Center before receiving any epidural bolus dose of an anesthetic or combination agent.

ASSESSMENT:

A. CONTINUOUS INFUSION

1. Monitor respiratory RATE AND QUALITY every 1 hour. Be alert to signs of respiratory depression (change in rate or depth of respirations, increased restlessness, bradycardia, change in skin color. Initiate pulse oximeter/apnea monitor per discretion.
2. Assess mentation:
 - a. first 24 hours every 1 hour; after bedtime every 4 hours if respiratory rate and quality are stable;
 - b. after first 24 hours every 1 hour while awake or every 4 hours if asleep and respiratory rate and quality are stable.
3. Assess patient for the following every 4 hours:
 - a. BP, P--observe for hypotension;
 - b. site--secure dry dressing and intact catheter;
 - c. adequacy of pain control, using a visual analog scale (0-10);
 - d. sign of infection (increased temperature, altered function of lower extremities, headache, nuchal rigidity, altered mental status);
 - e. urinary retention, bladder distention.
4. Assess patient receiving anesthetic agent for the following every 8 hours:
 - a. sensory dermatome level by temperature change, using alcohol drop method;
 - b. motor level blockade of lower extremities (use Bromage Scale) unless patient has had vascular surgery or been heparinized, then perform motor level blockade every 4 hours.

B. BOLUS DOSE

Anesthetic Agent

5. Following bolus dose of an anesthetic agent (either alone or in combination) by the anesthesiologist:
 - a. assess vital signs as follows: BP, P, R every 1 minutes x 5; every 5 minutes x 5; every 15 minutes x 2; then per continuous infusion routine;
 - b. assess sensory dermatome level for temperature change, using alcohol drop method every 8 hours.

Narcotic Agent

6. Following bolus dose of a narcotic agent, the registered nurse will assess vital signs as follows: BP, P, R the first 5 minutes after the bolus; then every 15 minutes x 4; then per continuous infusion routine.

VALIDATION OF SETUP:

7. Assess setup every 8 hours for the following:
 - a. correct solution;
 - b. tubing secured to patient using occlusive tape/dressing;
 - c. pump has volume and is infusing at ordered rate.
8. If pulse oximeter on patient:
 - a. validate alarms are set correctly;
 - b. reset alarms whenever power has been interrupted to machine;
 - c. sensor troubleshooting--erratic readings--are usually due to artifact, not sensor malfunction; check sensor by applying sensor on self prior to calling Respiratory Care or ordering new sensor from SPD; validate accuracy of heart rate display with apical pulse.

AFTER DRUG AND/OR CATHETER DISCONTINUED:

9. Following cessation of continuous infusion, assess respiratory rate and quality every 1 hour for 6 hours or per anesthesiology order.
10. Maintain IV access/heparin lock for duration of respiratory checks. Upon removal of epidural catheter, check with Anesthesia regarding minimal time prior to initiating pain medication--and then contact surgeon for specific analgesic orders.
11. Assess respiratory rate and quality as addressed in No. 9 above.

SAFETY:

12. Keep Narcan ampule available at all times (bedside or patient medication box).
13. Keep Ambu, tubing, and oxygen flow meter at bedside at all times.

- INFUSION TECHNIQUES:**
14. Obtain premixed medication solution from Pharmacy and double-check with two nurses (one must be R.N.); double-sign on the Epidural Flow Sheet.
 15. Begin infusion at pre-ordered rate and regulate per anesthesiologist order. Enter credit (volume limit and volume given) at the end of nurse's shift.
 16. Do not change dressing or tubing.
 17. Discard any epidural solution hanging over 72 hours, and double-sign wastage on the Medication Administration Record (MAR).
- COMPLICATIONS:**
18. Monitor for the following:
 - a. respiratory depression--
 - (1) if respiratory rate 10 per minutes or less and patient is excessively drowsy or lethargic, call anesthesiologist;
 - (2) if respirations 8 per minutes or less, call anesthesiologist STAT;
 - (a) turn off epidural infusion;
 - (b) administer Morcan 0.1-0.2mg IV push over 2 minutes;
 - (c) maintain airway;
 - (d) initiate oxygen with 2L per nasal cannula;
 - b. hypotension--increased signs of hypotension; heart rate less than 60 or a deviation from baseline of more than 15% or a blood pressure with a systolic less than 100 or a 20% deviation from baseline; call anesthesiologist;
 - c. dermatomes--
 - (1) if dermatome level advances cephalic from the T₁ level and/or patient c/o fingers tingling or loss of sensation, immediately notify anesthesiologist;
 - (2) maintain airway;
 - d. urinary retention--
 - *straight catheter or insert foley catheter and leave for a minimum of 12 hours;
 - e. pruritus--
 - (1) administer antipruritic as ordered;
 - (2) notify anesthesiologist if becomes severe or continues;
 - f. inadequate pain control--
 - (1) verify delivery of medication - security of catheter, patency, and security of infusion tubing;
 - (2) administer sedative, narcotic, or tranquilizer with Anesthesiology's approval;
 - (3) if pain control remains inadequate, notify Anesthesiology;
 - g. If patient is experiencing deterioration in multiple systems, as listed above, notify Anesthesiology.
 19. If catheter inadvertently removed, call anesthesiologist and save catheter for inspection. Whenever catheter system is disconnected, hang new setup (tubing and bag).
- ABSENCE FROM UNIT:**
20. If patient is to leave the unit, obtain anesthesiologist's approval and have a nurse accompany the patient--with exception of physical therapy on 5th floor.
- PATIENT INSTRUCTION:**
21. Instruct patient on the following on initiation of protocol:
 - a. frequent monitoring of vital signs;
 - b. calling for assistance with activity to prevent catheter from dislodging;
 - c. notify nurse of inadequate pain control, headache, or inability to move any part of the body.
- DOCUMENTATION:**
22. Record epidural medication infusion on the Epidural Flow Sheet when started.
 23. Record assessment on Epidural Flow Sheet by end of shift.
 24. Record implementation of protocol on Standards Flow Sheet by end of shift.
 25. Record end of shift summary note on the Nursing Progress Record by end of shift.
 26. Record evaluation of effectiveness of care via 24-hour summation every 24 hours to include:
 - a. improvement or deterioration of pain control;
 - b. presence or absence of complications with treatment.
- Resources:**
- Crowley, B., et. al. (1991). Clinical Indicators: A tool for temporary pain management documentation. Journal of Nursing Quality Assurance, 6(1), 40-46.
- Hubbard, Lex, M.D. (1990). Epidural analgesia in a private hospital. Schumpert Medical Center, Shreveport, LA.
- McNair, M. D., R.N., M.S.N., CCRN, CHRN. (1990, October). Epidural narcotics for postoperative pain: nursing implications. Journal of Neuroscience Nursing, 22(5), 275-279.
- Pasero, Chris, R.N., B.S.N. (1991). Director of Acute and Chronic Pain Services, Schumpert Medical Center, Shreveport, LA.
- Vadie, David, D.O. (1991). Anesthesia Department, Mercy Hospital Medical Center, Des Moines, Iowa.
- Approval:** 3/90
 Protocol Committee
 Infection Control Committee
 Central Standards Committee
- Review:** 12/93
Revised: 12/91
Distribution: Nursing Generic Standards Manual

Appendix C: Multidimensional Health Locus of Control Scales

Form A

Multidimensional Health Locus of Control Scales

This is a questionnaire designed to determine the way in which different people view certain important health-related issues. Each item is a belief statement with which you may agree or disagree. Beside each statement is a scale which ranges from strongly disagree (1) to strongly agree (6). For each item we would like you to circle the number that represents the extent to which you disagree or agree with the statement. The more strongly you agree with a statement then the higher will be the number you circle. The more strongly you disagree with a statement then the lower the number you circle. Please make sure that you answer every item and that you circle only one number per item. This is a measure of your personal beliefs; obviously, there are no right or wrong answers.

Please answer these items carefully, but do not spend too much time on any one item. As much as you can, try to respond to each item independently. When making your choice, do not be influenced by your previous choices. It is important that you respond according to your actual beliefs and not according to how you feel you should believe or how you think we want you to believe.

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
1. If I get sick, it is my own behavior which determines how soon I get well again.	1	2	3	4	5	6
2. No matter what I do, if I am going to get sick, I will get sick.	1	2	3	4	5	6
3. Having regular contact with my physician is the best way for me to avoid illness.	1	2	3	4	5	6
4. Most things that affect my health happen to me by accident.	1	2	3	4	5	6
5. Whenever I don't feel well, I should consult a medically trained professional.	1	2	3	4	5	6
6. I am in control of my health.	1	2	3	4	5	6
7. My family has a lot to do with my becoming sick or staying healthy.	1	2	3	4	5	6
8. When I get sick, I am to blame.	1	2	3	4	5	6
9. Luck plays a big part in determining how soon I will recover from my illness.	1	2	3	4	5	6
10. Health professionals control my health.	1	2	3	4	5	6
11. My good health is largely a matter of good fortune.	1	2	3	4	5	6
12. The main thing which affects my health is what I myself do.	1	2	3	4	5	6
13. If I take care of myself, I can avoid illness.	1	2	3	4	5	6
14. When I recover from an illness, it's usually because other people (for example, doctors, nurses, family, friends) have been taking good care of me.	1	2	3	4	5	6
15. No matter what I do, I'm likely to get sick.	1	2	3	4	5	6
16. If it's meant to be, I will stay healthy.	1	2	3	4	5	6
17. If I take the right actions, I can stay healthy.	1	2	3	4	5	6
18. Regarding my health, I can only do what my doctor tells me to do.	1	2	3	4	5	6

Appendix D: Demographic Data Collection Tool

Patient ID#	Gender	Age	Medical diagnosis	Surgical Procedure (date)	Score on Pain Scale			48 Hour Mean	Patient ID#	MHLC Assessment Tool	MHLC Classification
					Day 1	Mean	Day 2				
1	F	65	Cholecystitis	Cholecystectomy (10/15/01)	10	7	8	8.33	1	1	1
2	M	55	Cholecystitis	Cholecystectomy (11/01/01)	9	6	7	7.33	2	1	1
3	F	70	Cholecystitis	Cholecystectomy (12/01/01)	8	5	6	6.33	3	1	1
4	M	60	Cholecystitis	Cholecystectomy (01/02/02)	7	4	5	5.33	4	1	1
5	F	50	Cholecystitis	Cholecystectomy (02/02/02)	6	3	4	4.33	5	1	1
6	M	40	Cholecystitis	Cholecystectomy (03/02/02)	5	2	3	3.33	6	1	1
7	F	30	Cholecystitis	Cholecystectomy (04/02/02)	4	1	2	2.33	7	1	1
8	M	20	Cholecystitis	Cholecystectomy (05/02/02)	3	0	1	1.33	8	1	1
9	F	10	Cholecystitis	Cholecystectomy (06/02/02)	2	0	0	0.67	9	1	1
10	M	0	Cholecystitis	Cholecystectomy (07/02/02)	1	0	0	0.33	10	1	1

[illegible]

Appendix E: Permission from Hospital's IRC



MERCY HOSPITAL MEDICAL CENTER

59

June 25, 1992

Julianne Sarcone
4816 Westwood Drive
West Des Moines, Iowa 50265

Dear Ms. Sarcone:

Please be advised that on June 25, 1992, the Institutional Review Committee (IRC) approved your clinical research project regarding

Locus of Control and Pain Perception

The acceptance of this protocol does not in any way grant you permission to perform invasive procedures. This privilege must be obtained from your Medical Staff Department.

The IRC does require prompt notification concerning adverse effects and or/sudden death. The IRC will schedule an annual review of your project.

Attached is the consent form that is to be utilized in this clinical study.

Sincerely,

Timothy Grissom, M.D., Chairman
Institutional Review Committee

/jaa

Appendix F: Permission to Use Multidimensional
Health Locus of Control Scales

VANDERBILT UNIVERSITY



NASHVILLE, TENNESSEE 37240

TELEPHONE (615) 322-7311

Health Care Research Project * School of Nursing * Direct Phone 343-3317

To: Fellow Health Researcher
From: Kenneth A. Wallston, Ph.D.

Thank you for your interest in the Health Locus of Control Scales. Please excuse this form response, but I have so many inquiries requiring similar replies that I have found this to be an efficient means of disseminating information.

You have my permission to utilize Form A or B of the MHLC scales in any health related research you are doing. My only request is that you keep me informed of any results you obtain using the scales. In that way I hope to continue to serve as a clearinghouse for information about the scales.

We have recently developed Form C of the MHLC scales, an instrument which can easily be made specific to any existing medically-related condition which your subjects might have (e.g., diabetes, cancer, high blood pressure, migraine headaches, arthritis, chemical dependencies, etc.) We have used Form C as an "Arthritis Locus of Control Scale" and are generally pleased with its psychometric properties. If you think such an instrument would be helpful in your research and if you are willing to share your data back with us, we would be pleased to make it available to you.

If you wish us to send you additional material, please complete and return the enclosed form. For most items there is a small charge to cover duplication and postage.

If you have more specific questions, don't hesitate to contact me. Please remember to send me information on any use you make of these scales. I have included a usage questionnaire to facilitate your doing so. I look forward to hearing from you.

P.S. I have enclosed a copy of a brief article I just wrote on the importance of placing measures of Health Locus of Control in a Theoretical Context. I hope you find it interesting and stimulating.

8/90

What to do with the MHLC scores once you get them

The whole purpose of the Multidimensional HLC Scales is that you do not end up with a single score indicative of internality or externality. Instead, you end up with three scores: IHLC, PHLC & CHLC--the first assessing "internality," and the other two separate aspects of "externality." They should not be combined into one measure.

If it is important for your hypothesis to be able to classify someone as "internal" or "external," or if you wish to use analysis of variance to analyze your data, there are a couple of options available to you, none of which is necessarily the "best" way.

One option is to pick any one of the three scores--say, IHLC, for example--and split it at the median into two groups: e.g., "high internals" and "low internals" (note that this latter group is not necessarily "external," because it could contain some subjects who also score low on the PHLC and/or the CHLC). You could do this with any one of the three scales.

Another approach is to convert all your raw scale scores into standard (z or T) scores and label a given subject as an "internal," "powerful others external," or "chance external," depending on which of the subject's three standardized scores is the highest.

A third option, one that we are beginning to use with increasing frequency, is to do median splits on all three scales and to classify subjects into one of the eight "types" depending on their pattern of being above ("high") or below ("low") the median of the scales. (This typology was first addressed in our chapter in the Sanders & Suls book, 1982.) Only one of these eight types (high on IHLC, low on both PHLC & CHLC) can be called "pure internal," but some of the other types which contain a mixture of internality and externality are theoretically quite interesting. At first glance, this third method appears to need a large number of subjects in order to be useful, but this turns out not to be the case. You don't, after all, need to include all eight types in your analysis.

Whichever method you choose to classify your subjects, remember that you can (and often should) analyze your data factorially by crossing HLC category with health value. Again, you can split health value any way you wish, but we usually do a median split based on sample rank frequencies. (See

our work on using the Value Survey to measure health value for further help with this.)

What if you wish to analyze your data using regression (i.e., correlational) statistics? In this case, you can treat each MHLC Scale as a continuous variable and use parametric statistics such as Pearson Product-Moment correlations or other applicable statistics. Multiple linear regression statistics are frequently employed with the three MHLC Scales as separate predictors.

Again, when appropriate, we advocate the use of a measure of health value in interaction with the MHLC scores when doing regression analyses. To create a multiplicative score between one of the MHLC scales and Health Value (HV), do it in the following manner (depending on which MHLC scale is being used and the population being studied). First, using the computer, standardize scores on all of the variables that will be multiplied. We use T-scores (rather than z-scores) to eliminate the negative signs (since two big negative numbers multiplied together result in one big positive product). Secondly, decide which way to score HV. (When multiplying IHLC and HV, the decision is to score HV so that Health, when ranked 1st, is "10." When CHLC is used, HV must be reversed, i.e., Health ranked 1st - "1"). The ambiguity is with PHLC. With "normal" subjects, treat PHLC as an "external" dimension and deal with it as CHLC: with subjects who have a chronic, long-term disease (such as arthritis, hypertension, diabetes) where it is important for the patient to work interdependently with health-care providers and others, PHLC should be treated the same way as "internality" and should be multiplied by HV with high = "10." There is no absolute right way to do this.

Scoring Instructions MHLC Scales

Form A or B

The score on each subscale is the sum of the values circles for each item in that subscale.

Internal Items: 1, 6, 8, 12, 13, 17

Chance Items: 2, 4, 9, 11, 15, 16

Powerful Others Items: 3, 5, 7, 10, 14, 18

MEAN SCORES FOR MHLC SCALES
SUMMARIZED ACROSS TYPES OF SUBJECTS

<u>SAMPLE</u>	<u>N</u>	<u>IHLC</u>	<u>CHLC</u>	<u>PHLC</u>
CHRONIC PATIENTS	609	25.78	17.64	22.54
COLLEGE STUDENTS	749	26.68	16.72	17.87
HEALTHY ADULTS	1287	25.55	16.21	19.16
PERSONS ENGAGED IN PREVENTIVE HEALTH BEHAVIORS	720	27.38	15.52	18.44

Appendix G: Consent Letter

Dear

I am an employee of Mercy Hospital Medical Center as an instructor at Mercy School of Nursing and a graduate student in the Division of Nursing at Drake University in Des Moines, Iowa. As a part of my graduate program I am conducting a study to better understand what factors contribute to a person's perception of pain relief.

I am requesting your participation in this study. You have been selected as a potential participant because you have undergone abdominal surgery and received epidural analgesia post-operatively.

The goal of this study is to investigate if there are differences in perception of pain relief with epidural analgesia dependent on a persons beliefs about factors that effect human existence. The information to be collected will assist nurses to understand patients in pain and to improve their ability to assist and support these individuals.

Participating in this study involves completing the enclosed Multi-dimensional Health Locus of Control questionnaire. It should take you approximately 10 minutes to complete. In addition, I am asking your permission to review your hospital record for information regarding your age, gender, the type of surgical procedure, and information describing your pain experience. A stamped self-addressed envelope for the return of the questionnaire is included. Completion and return of the questionnaire will indicate your consent to participate.

There are no risks in participating in this study. Your identity will be protected by strict confidentiality. The questionnaire is coded with a number by which you will be identified exclusively throughout the study. This number will allow me to match your questionnaire with the information regarding your pain experience from your hospital record. At no time will your name appear with reference to this study. Participation in the study is voluntary. You may decline answering the questionnaire and your decision will be respected.

I would like to thank you for taking the time to read this letter and consider my request for participation in this study. If you have any questions or comments please feel free to contact me at the address indicated below.

Sincerely,

Julianne M. Sarcone

4816 Westwood Drive
West Des Moines, Iowa 50265
(515) 223-8726